EMPIRE MINE
State Historic Park

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Empire Mine
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Cover Photo: Going to work. Man cars at surface of Empire Mine, circa 1900.

WELCOME TO THE EMPIRE MINE. NOW A STATE HISTORIC PARK, IT TELLS THE STORY OF HARD-ROCK GOLD MINING AND ITS SIGNIFICANCE IN CALIFORNIA'S HISTORY. THE EMPIRE WAS THE OLDEST, LARGEST AND RICHEST GOLD MINE IN THE GRASS VALLEY AREA.

Within two years of James W. Marshall's discovery of gold in 1848, great hordes of 49ers had panned out most of California's gold-bearing streambeds. Only a few miners had any real idea of the quantities of gold still locked beneath the surface of the Sierra in sheet-like veins of quartz. But in June of 1850, George McKnight discovered a gold-bearing quartz outcropping about a mile from here, near St. Patrick's church in downtown Grass Valley. Then, in October of 1850, a lumberman named George Roberts found flecks of gold in a surface outcropping of quartz where the park's main parking lot is now located.

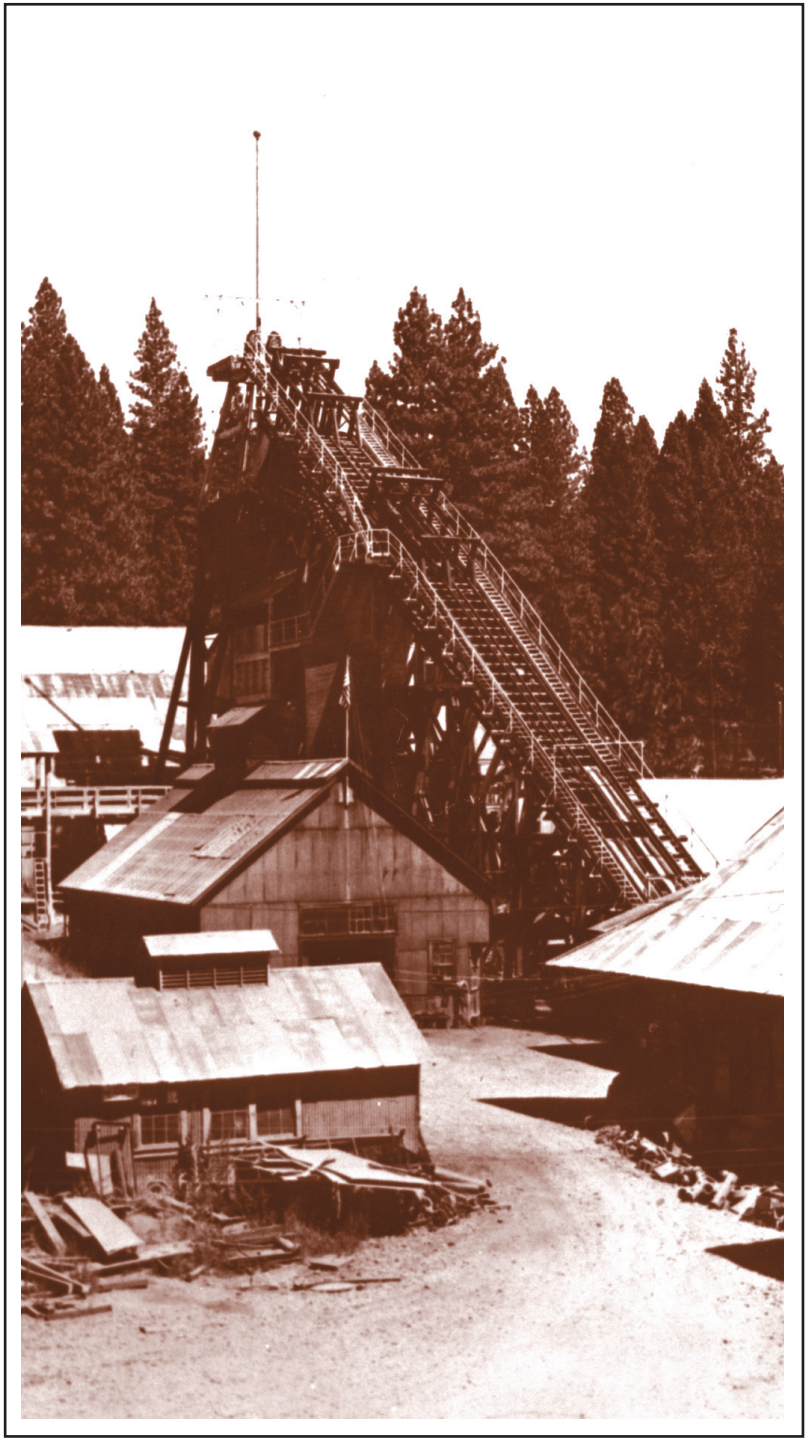
Hearing the news, hundreds of miners flocked to this area to stake out the customary 40-foot by 30-foot placer claim. However, they soon found that they lacked the skills necessary to tunnel deep into the earth. Chipping and blasting rock was hard and dangerous work. Cave-ins were frequent, and tunnels were continually being flooded by under-

ground springs. By 1851 the land was perforated with hundreds of "coyote holes"—vertical holes in the ground, 20 to 40 feet deep—that resembled water wells. Miners were lowered into these holes in buckets.

George Roberts, like many others, became discouraged and sold his claim for $350 to a group that was consolidating small claims into a single operation to be known as the Ophir Hill Mine. In 1852, the Ophir Hill Mine property was purchased by John Rush, who changed the name to the Empire Quartz Hill Company.

Ownership of the mine continued to change rather rapidly during the 1850s and 1860s. Surface structures and processing plants were repeatedly torn down, rebuilt and modernized. The Empire Mine prospered after financier William Bourn gained a controlling interest in 1869, but his death in 1874 was followed by a slump in production.

In 1879 Bourn's son, William, Jr., reached the age of 22 and took over management of the mine. At that time all indications pointed to the mine's imminent closure. Many believed that profitable operations were impossible below the 1,200-foot level, but young Bourn reorganized the company and boldly pushed several shafts much deeper. In subsequent years operating expenses were barely paid, but by 1884 the operation was making a profit once again.



Empire Mine headframe and surface buildings, circa 1950

Much of the Empire's success was due to the work of Bourn's cousin, George W. Starr. Starr began work in the Empire Mine at the age of 19 and in six years (1881 to 1887) worked his way from mucker to mine superintendent. In 1893 he gave up his position to join the famous mining engineer John Hays Hammond in the gold mines of South Africa. Then, on his way to Alaska in 1898, Starr stopped in San Francisco to visit Bourn, who persuaded Starr to return to the Empire, where he served as superintendent until 1929.

The most important factor in the success of hardrock mining in California was the immigration of skilled miners from Cornwall, England, where hardrock tin and copper mining had been carried on for over a thousand years. These Cornishmen brought in experience, skill and the latest technological advances in mining equipment. One of these inventions, the "Cornish pump," was so efficient that they continued to be used until the early 1930s. By 1890 the population of Grass Valley was reportedly 85 percent Cornish. Every Cornish miner seemed to have an unlimited supply of relatives to recommend for every mine job, and since many of the miners wanted to undertake the hard, dangerous work only with trusted friends and relatives, the Cornishmen soon received the nickname, "Cousin Jacks." To this day their brand of humor and other cultural traditions, including food specialties such as pasties and saffron buns, continue to give a distinctive flavor to life in the Grass Valley area.

Modernization and Mules

Before World War I, Bourn and Starr incorporated many mining improvements, and the Empire became famous as one of the most progressive and best managed gold mines in America. Mules were used underground to pull loaded ore cars from drifts to the main mine shaft where the ore could be hoisted to the surface. The mules were well cared for and lived in snug underground barns until they became too old to work.

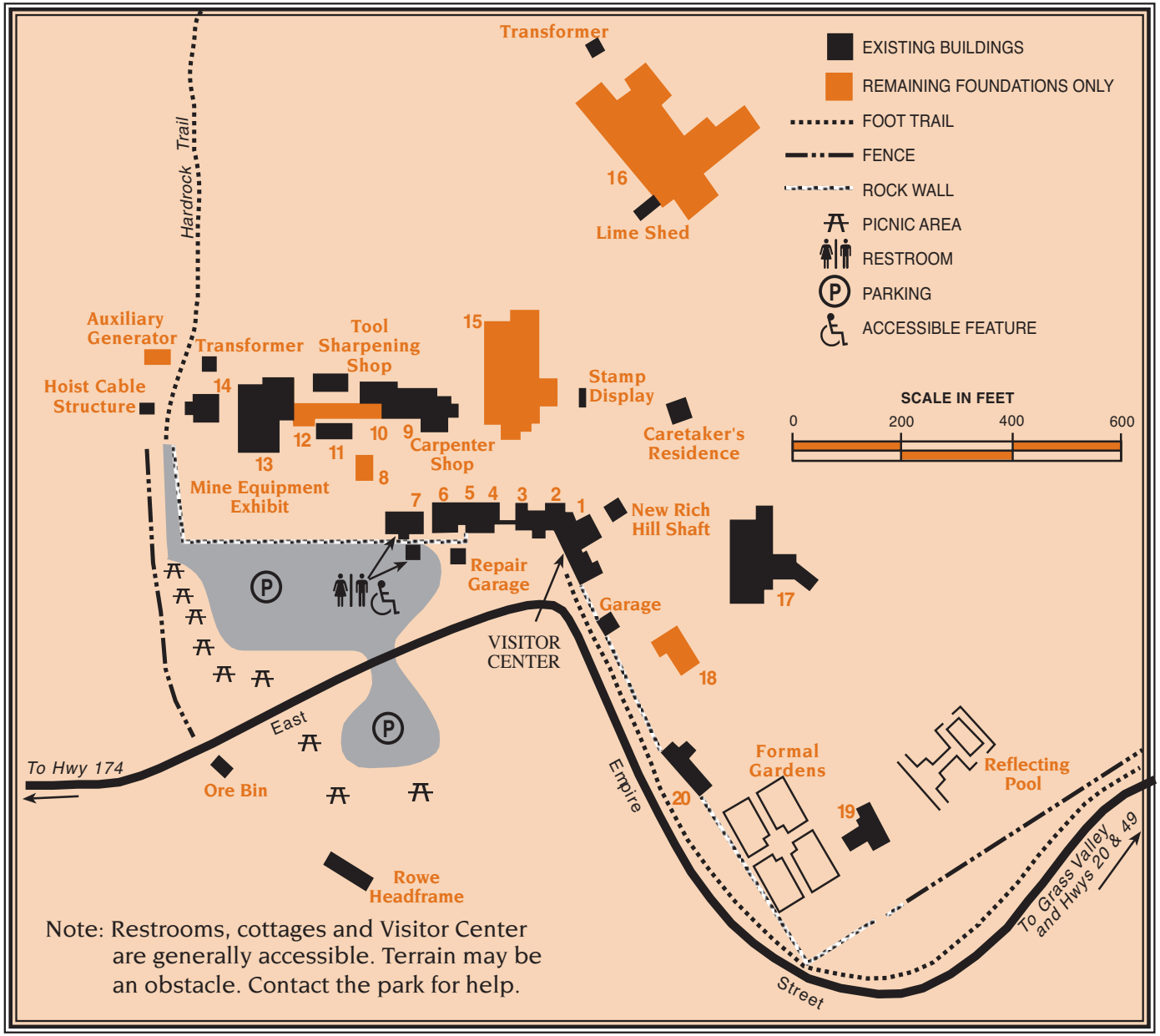
Miner and mule hauling ore car to the main shaft

In 1929 Bourn, in failing health, sold the Empire to Newmont Mining Corporation. During the same year, Newmont also purchased a controlling interest in the North Star Mine. The combined operation of these mines was then known as Empire-Star Mines Company Ltd. Gold from the Empire-Star not only helped to keep the Newmont Corporation solvent during the early 1930s, but made the Great Depression something the residents of Grass Valley "only read about in the papers."

The Empire's prosperity continued until World War II, when the War Production Board halted nonessential industries such as gold mining. The mine reopened in 1945, but the price of gold remained fixed at its 1934 level of $35 an ounce, providing little profit. By the early 1950s, inflation had driven the cost of mining to $45 per ounce of gold. The company could not pay the miners enough to feed their families. Consequently, on July 5, 1956, the miners went on strike. For several months thereafter, while the strike continued, the big underground water pumps remained in operation in anticipation of the miners' return. The removal of underground mining equipment began in January 1957. On May 28 the last pump was shut down and the mine finally closed. Its equipment was sold at auction in September 1959. By then total gold production by the Empire Mine had reached nearly six million ounces. That represents more than two billion dollars worth of gold at today's prices.

The great pumps that once lifted a million gallons of water a day are silent now, and the mine is flooded 180 vertical feet below the surface. Gone are the hundreds of Cornish miners who dug 367 miles of tunnels, some 11,000 feet, angling on the incline nearly a full vertical mile below the surface. Gone are the great hoists and cables that enabled the miners to travel thousands of feet down the shafts. Gone are the mules that pulled the ore trains through the tunnels. But the gold is still there, awaiting a time when deep, hardrock gold mining might again be profitable.

The main shaft as it looks today



1 Visitor Center

Formerly the carriage house, stable and grooms' quarters. With the coming of the automobile, the part of the building that is now the audio-visual center was converted into a garage. Gold samples are on display in a specially constructed vault.

2 Model Room

Contains a scale model of the underground workings of the Empire-Star mine complex. Work on the model was started in 1938 by Robert Cannon, a geologist and mining engineer under Fred Nobs, the mine manager. The model was updated over the years to reflect continuing expansion of the mine.

3 Mining Engineer's Office

After the merger with the North Star Mine in 1929, additional space was needed for an engineering staff to chart and direct the growth of the mine.

4 Mine Office

(walk-through museum) Originally constructed in 1898 as part of George Starr's extensive redevelopment of the Empire Mine, the office has been restored to represent both the period of Bourn's ownership and that of Newmont.

5 Refinery Room

Amalgam from the stamp mill was heated in a sealed retort until the quicksilver, or mercury, vaporized off and was recycled for re-use. The remaining gold sponge was melted, cast into 89-pound bars, and delivered to the U.S. Mint in San Francisco for payment. After 1910, when the cyanide process was installed, additional furnaces were added to more efficiently recover gold and silver deposited on zinc chips as part of the cyanide process.

6 Grass Valley Cooperative Rescue Station

First built as an assay office, these rooms served as headquarters of the rescue team after 1924. First-aid classes and monthly meetings took place in the upstairs classroom.

7 Warehouse

The original building was used for storage of mining supplies and hay for the mules. It was reconstructed by volunteers in 1989 to serve as a meeting and training facility.

8 Welding Shop

Nothing remains of the small metal shop where repairs and fabrication of mining equipment were carried out. This was one of several buildings that were torn down and sold after the mine closed.

9 Machine Shop

Steam power was no longer economical after 1886, because most of the area's timber had been consumed. Thereafter, the drills, lathes and other machines in this room were powered by the energy generated by Pelton water wheels. Notice the leather belts and ceiling-mounted shafts and wheels that are still in place.

10 Shaft Viewing Area

Men and ore skips sped through this portal at a rate of 600 and 1,200 feet a minute, respectively. This shaft continues for 4,650 feet with many branching tunnels, the deepest of which ends more than two miles from this point and more than 5,000 feet below the surface.

11 Blacksmith Shop

In the early days, mines had to be nearly self-sufficient, and most of the equipment, from door hinges to pump covers and stamps, was fabricated in the company shops.

12 Headframe

The Empire headframe was 94 feet high. It supported the track which carried the men, equipment and rock to and from the mine. Ore bins and a primary rock crusher were contained in the headframe. Crushed ore was transported to the stamp mill for further processing. Waste rock was piled south of the mine yard and sold for construction purposes. The headframe was felled in 1969 because of taxation and liability concerns.

13 Compressor Building

First run by steam, later by water and finally by electricity, the giant compressors pumped huge quantities of air into the mine to operate drills and hoists, as well as to ventilate the mine after blasting.

14 Hoist House

Here skilled hoistmen raised and lowered men, supplies, waste rock and ore to and from the various mine levels with incredible accuracy and speed.

15 Stamp Mill

Only a few foundations are left from this large building which once held eighty 1,750-pound stamps that continually smashed tons of ore into fine sand. The sand was washed over tables coated with quicksilver that captured the gold. The tables were scraped periodically, and the amalgam and quicksilver was taken to the refinery for separation.

16 Cyanide Plant (1910)

Unlike earlier processes designed to recover gold by strictly physical means, this chemical process involved adding sodium cyanide to crushed ore to dissolve and separate the gold from sulfides and to deposit it as a coating on zinc chips. This method improved the Empire's production by 40 percent. Concrete foundations indicate the position of processing tanks.

17 Empire Clubhouse

George Starr convinced William Bourn of the need for the clubhouse as a meeting place for supervisory personnel and as a place to entertain visiting guests. Constructed in 1905, the clubhouse still serves as a meeting place for the Empire Country Club, which was organized in 1915.

18 Starr Home

Ophir Cottage was the home of mine superinten-dent George Starr. Only the foundation is visible today. Directional fire hydrant monitors were unable to save the house from fast-moving flames that consumed it on October 28, 1935.

19 Empire Cottage

This beautiful "English manor home" was called a cottage to differentiate it from the other homes of William Bourn, Jr. It was designed by the well-known San Francisco architect, Willis Polk, and built in 1897. The lower wing with its arched doors was used for storage. The main floor contains the kitchen, service rooms, a spacious living room, a dining room and a reading room (later converted to a bedroom after Mr. Bourn's stroke in 1922). The family's four large bedrooms and two baths were across the front of the second floor. Two bedrooms and one bath for the servants were above the kitchen area. The interior of the cottage is paneled in heart redwood.

20 Gardener's House and Greenhouse

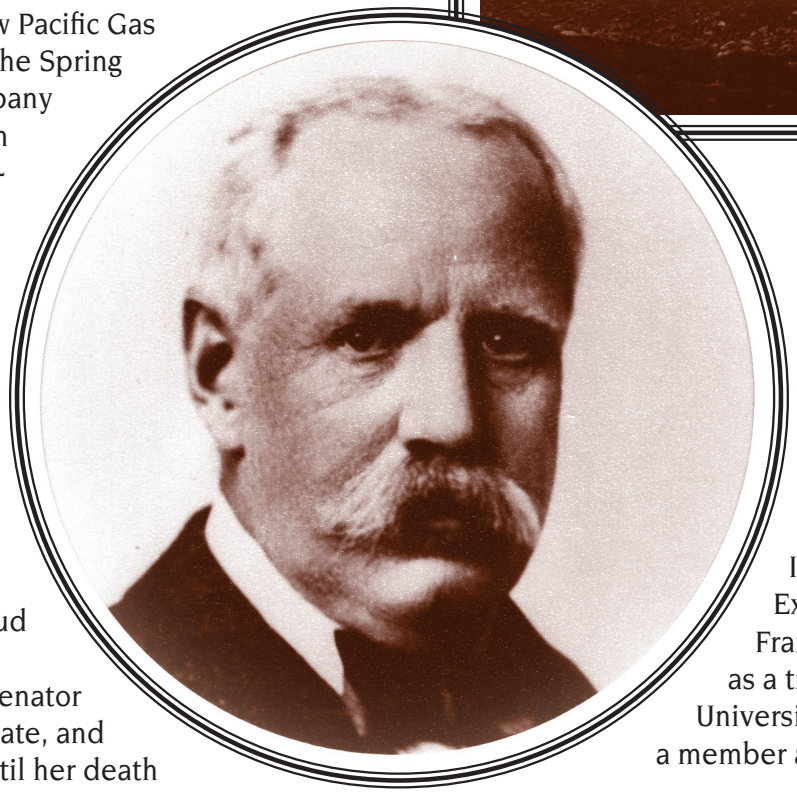
Mr. and Mrs. William Bourn greatly appreciated the beauty of flowers and trees, and many varities were cultivated in the greenhouse. There are now approximately 950 old-type rose bushes in the formal gardens and on the landscaped grounds.

William Bowers Bourn, Jr. (1857–1936) attended California schools and Cambridge University in England before taking charge of the Empire Mine in 1879. Under his leadership, the mine was rescued from closure and became quite profitable. By 1888 he was able to go into banking and otherwise diversify his business involvements. For eight years starting in 1888, he was preoccupied with other business, but in 1896 he re-acquired controlling interest in the Empire and guided a program of expansion and modernization that made it the largest, most efficient gold mine in California. Profits were enormous for many years thereafter.

Bourn was also associated with other important business ventures including the Greystone Winery in St. Helena (now Christian Brothers Winery), the San Francisco Gas Company (now Pacific Gas and Electric) and the Spring Valley Water Company (the nucleus of San Francisco's turn-of-the-century water supply system).

In 1881 he married Agnes Moody of Yonkers, New York and established a home in San Francisco. A son born in 1882 did not survive, but their daughter Maud grew up, married Arthur Vincent, a senator of the Irish Free State, and lived in Ireland until her death in 1929.

Empire Cottage, circa 1900



William Bowers Bourn, Jr., circa 1922

Agnes and William Bourn were active in many civic and philanthropic endeavors. For example, he was one of the leaders in financing the Panama-Pacific International Exposition in San Francisco. He served as a trustee of Stanford University for a time and was a member and president of the San Francisco Musical Association. As such, he played a leading role in creating the San Francisco Symphony Orchestra and constructing the San Francisco War Memorial Opera House.

Between 1915 and 1917, the Bourns built a magnificent 43-room home on a 600-acre site near Woodside, about 25 miles south of San Francisco. The estate, which they called Filoli (fight bravely, love bravely, live bravely), is now owned by the National Trust for Historic Preservation and is open to the public for tours. For further information, call the Friends of Filoli at (650) 366-4640.